

JIARUI LIU

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EDUCATION

Carnegie Mellon University

M.S. in Language Technologies, School of Computer Science, GPA 4.00/4.00, Advised by [Mona Diab](#) Pittsburgh, PA
August 2025 (Expected)
Relevant Courses: Advanced NLP, MultiModal ML, Neural Code Generation, Probabilistic Graphical Models, LLM Systems

University of Michigan

B.S. in Computer Science, College of Engineering, GPA 3.86/4.00 Ann Arbor, MI
May 2023
Relevant Courses: Deep Learning in Computer Vision, Operating Systems, Web Systems, Intro to Java, Mobile App Development

PUBLICATIONS

- [1] **Automatic Generation of Model and Data Cards: A Step Towards Responsible AI** NAACL, 2024
Jiarui Liu, Wenkai Li, Zhijing Jin, Mona T. Diab
- [2] **Analyzing the Role of Semantic Representations in the Era of Large Language Models** NAACL, 2024
Zhijing Jin*, Yuen Chen*, Fernando Gonzalez Adauro*, **Jiarui Liu**, Jiayi Zhang, Julian Michael, Bernhard Schölkopf, Mona T. Diab
- [3] **Can Large Language Models Infer Causation from Correlation?** ICLR Poster, 2024
Zhijing Jin*, **Jiarui Liu***, Zhiheng LYU, Spencer Poff, Mrinmaya Sachan, Rada Mihalcea, Mona T. Diab
- [4] **Bias Amplification Enhances Minority Group Performance** TMLR, 2024
Gaotang Li*, **Jiarui Liu***, Wei Hu
- [5] **Voices of Her: Analyzing Gender Differences in the AI Publication World** Manuscript, 2023
Yiwen Ding*, **Jiarui Liu***, Zhiheng LYU, Kun Zhang, Bernhard Schölkopf, Zhijing Jin, Rada Mihalcea

RESEARCH EXPERIENCE

Graduate Research Assistant, Carnegie Mellon University

Automatic Generation of Model Cards: A Step Towards Responsible AI | Advised by [Mona Diab](#) Pittsburgh, PA
September 2023 - Present

- Constructed a 10k Model Card dataset with direct link to paper and GitHub readme texts, and translated it into 5 languages
- Led the project, and developed a hierarchical retrieve-and-generate system to automatically generate model and data cards

Undergraduate Research Assistant, University of Michigan

Can Large Language Models Infer Causation from Correlation? | Advised by [Rada Mihalcea](#) Ann Arbor, MI
October 2022 - February 2023

- Tuned and prompted 12 BERT-based/GPT-based models on our CORR2CAUSE dataset, completed ablation study
- Built a Python package for linguistic comparison of two corpora and prediction error analysis of transformer-based models

Worst-Group Performance Improvement through Bias Amplification | Advised by [Wei Hu](#)

July 2022 - May 2023

- Developed the two-stage algorithm to improve the worst-group accuracy with a trainable instance-wise auxiliary variable
- Led the project, and achieved state-of-the-art performance on Waterbirds, CelebA, MultiNLI, and CivilComments

WORK EXPERIENCE

Warp Engine LLC

Natural Language Processing Intern

Shanghai, China
May 2023 - August 2023

- Adopted LoRA and prompt tuning to nine open-sourced large language models including Falcon-40B and LLAMA2-70B
- Generated and cleaned 50k multi-turn dialogue data for ten characters using LangChain, vector databases and GPTCaches
- Invented a plug-and-play emotion classifier of seven classes on top of any language models, and reached 0.965 F1-score

PROJECTS

Thread Library, Virtual Memory Pager, and Network File Server in Operating Systems | C++, Monitor, Socket

- Designed a C++ thread library handling interrupts concurrently, and interfaces for conditional variable and mutual exclusion
- Implemented memory management using paging for swap-backed and file-backed pages through a state machine diagram
- Wrote a multi-threaded network file server with crash consistency and hand-over-hand locking for create, read, write, delete

SKILLS

Programming Languages: Python, Java, C++, JavaScript, C, C#, Kotlin, Bash, R

Machine Learning/NLP: PyTorch, Transformers, TensorFlow, Scikit-Learn, SpaCy, LangChain, Pandas

Software Development: Flask, React.js, HTML/CSS, Android SDK, Unity